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Interactive comment on "Changes in beach shoreline due to sea level rise and waves under climate change scenarios: application to the Balearic Islands (Western Mediterranean)" *by* Alejandra R. Enríquez et al.

Anonymous Referee #1

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The paper presents the contribution of sea level rise and waves to shoreline changes under different scenarios. It is an interesting topic that in the last decades has gained much attention and the paper is within the remit of the journal; however, I suggest some reworking before publication as some sections are unclear as well as some figures and results missing. I really hope that the following comments will improve the quality of the paper.

Introduction: The authors introduce properly the main topic in the first three paragraphs; however, from line 15 to line 24 on page 2 the author focuses on the method-

ology and the used data, which is described on Data and Methods section. I would recommend to remove it in order to avoid repetitions.

Data and Methods: Information about the study area which is provided in the conclusions section (i.e. bed rock and small cliff at Calla Millor, line 24 on Page 9) should be displaced in the description of the studied areas.

Video monitoring data: the description of the SIRENA system should include information about the errors of intrinsic and extrinsic parameters. Moreover, the error of the observed shoreline position should have been displayed in Figures 11 and 12.

Forcing of numerical models: The wave climate analysis is unclear and results of wave projections are not shown in figures. Authors should provide the projections obtained from WAM model as well as the mean and extreme wave changes over the period from 2080 and 2100 and from 1980-2000. Moreover, a figure of the significant wave height versus return period should be included so that the reader can have a perception of the fit.

Shoreline changes under climate change scenarios:The authors assume that the beach profile remains constant and although they apply PETRA model in order to check the limitation of the assumption, they do not show any figures or results.

Other comments:

Line 11 (Page 7):In Playa de Palma beach, differences are shown between measured and modeled peak period. A reason would be needed here.

Line28 (Page 7): It is said that the difference between measured and simulated shoreline is related to the distance of the cameras. How much is the error of the measured shoreline? This should be indicated.

Lines 29-31 (Page 9)- Line 1 (Page 10): It is justified that the beach shape is constant due to the low variability in the energy flux and that the beach profile plays a minor role in the shoreline retreat. Nevertheless, neither results nor figures are provided in the

manuscript. In my view, they should have been provided.

Language issues:

The paper uses multiple verb forms. For example, on line 8 (Page 4) present in the passive voice is used ('models are combined') and on line 15 (Page 4) past in the same voice is selected ('simulations were performed').Perhaps a revision of the manuscript should be needed.

Please avoid the use of first personal along the manuscript. As you probably know, scientific studies do not recommend it.

References:

References are not properly written.On the reference list, the initials of the author(s) must be written always after the last name and the manuscript does not supply the correct order. I suggest reading carefully manuscript preparation guidelines. Finally, another mistake that I would like to mention:

The in-text citation of Vera Guimarães et al. (2015) is displayed as Guimarães on the reference list.